

CLAIM

We claim:

1. A process for the selective dialysis of the waste water containing heavy metals comprising the flowing steps of:
 - providing a porous membrane, said membrane having pores of sufficient dimension to allow passage of the heavy metals ions through,
 - circulating a concentrated dispersion of silica miscible with said waste water against a first side of said membrane, said silica particles having dimension large than that of said pores;
 - passing said waste water containing said heavy metals ions against a second side said membrane whereby certain of said materials becomes bound to said silica particles upon passing through said membrane to said first side in a concentration greater than their concentration in said liquid stream and thereby become separated from the said liquid stream;
2. A process as set forth in claim 1, wherein said waste water flow the opposite direction to the said silica dispersion, the counter-flow mode;
3. A process as set forth in claims 1 and 2, wherein said membrane is organized as membrane device comprises a lumen of a bundle of hollow fibers with silica dispersion flowing either inside or outside of the fibers and wastewater flowing on the opposite side of the fiber membrane;
4. A process as set forth in claims 1, 2, and 3, wherein said concentrated silica dispersion is colloidal silica;
5. A process as set forth in claims 1, 2 and 3, wherein said concentrated silica dispersion is fumed silica; .
6. A process as set forth in claim 1 and 3, wherein said colloidal silica saturated with adsorbed ions is pumped out and allowed to solidify.
7. A process as set forth in claim 6, wherein said colloidal silica saturated with adsorbed ions is pumped out and heat treated for solidification.